

Maryland Department of Natural Resources  
Forest Service  
Annapolis, Maryland 21401



## The Hemlock Woolly Adelgid

The hemlock forests of Maryland are part of a unique and often fragile habitat. Because of their shade tolerance and intolerance of fire, hemlocks are usually found growing in riparian areas or in steep cove forests in the northern and western tier counties of Maryland. It's estimated that more than 42,000 acres of such forests exist in Maryland.

The health of Maryland's hemlocks, and the associated ecosystems, is being threatened by the hemlock woolly adelgid (HWA). This small, exotic insect is native to Asia, and was first found in North America in British Columbia in the 1920's. It was reported in Richmond, Virginia in 1951, and spread northward into Maryland by the 1980's.

Heavy infestations of HWA may result in decline of tree health and eventual mortality. The severity of decline and mortality is often hastened by drought, or other pests, such as elongate hemlock scale and hemlock borer. Several stands in Maryland, which have been infested with HWA for more than 10 years, have extensive decline and some mortality.

Landscape hemlocks in the Baltimore – Washington area were infested in the late 1980's and natural stands in the area became infested by 1990. The infestation steadily moved westward through native stands of hemlock in Frederick and Washington Counties in the mid-1990's, Allegany County in 1999 and Garrett County in 2001.

While adelgid populations were moving through Maryland in the 1980's and 1990's, there were very few management tools available to stop its spread. Although treatment options for HWA are still being developed, there are now more tools available than there were just 10 years ago.

The Maryland Departments of Agriculture and Natural Resources have developed a Hemlock Woolly Adelgid Management and Suppression Plan. This plan sets forth management options for HWA on public lands across the State. Treatments began in the fall of 2004 and have continued through the present.

Visit this website, for more detail on the biology and identification of HWA:

[http://mda.maryland.gov/plants-pests/Pages/hemlock\\_woolly\\_adelgid.aspx](http://mda.maryland.gov/plants-pests/Pages/hemlock_woolly_adelgid.aspx)

The tables below indicate suppression efforts on Savage River State Forest.

Last Modified: 11/14/2011 16:5

Last Modified: 01/06/2018 12:40

Last Modified: 03/06/2025 12:31



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## Predator Release Form

First Previous 693 of 1828 Next Last

Location: Afghanistan Afghanistan

Location Name: Foglar Lock		State: MD	Release ID: LHM0313001	Status: Pending	Type: Original
<b>Coordinate Reading</b>					
UTM					
Datum:	NAD83	Zone:	17		
Easting:	660209	Northing:	6385327		
Lat/Long:					
Latitude:	39.559958	Longitude:	-79.133336		
UTM:	39 13 3958		79 B 0001		
U M S	39 33 53.58		79 B 0		
<b>Biological Control Agents Released</b>					
Species Released:			13		
Total No. Predators Released:			1000		
Life Stage Released:			Adults		
Predator Density(Ind./Tree)					
Source of Beetles:			LAB		
<b>Lab-Reared Beetles</b>					
Inventory: VA			Rearing Lot #: 2013		
Date of Shipment:			11/22/2013		
Conditions Prior to Release:					
Temperature: 12 C			Photoperiod: 12-12 (L-D)		
Post-Dissemination:			Outplanting: No		
<b>Field Collected Beetles</b>					
Wild Beetle Collection Site:					
Wild Beetle Collector:					
Date of Field Collection:					
<b>Pre-Release Data for Release Trees</b>					
<b>Tree 1</b>			<b>Tree 6</b>		
ID Tag:		DBH: 6 inch	ID Tag:		DBH: 2 inch
Hemlock Health:		Pair	Hemlock Health:		Pair
Other Stressors?			Other Stressors?		
WMA Density:		Medium	WMA Density:		Medium
<b>Tree 2</b>			<b>Tree 7</b>		
ID Tag:		DBH: 10 inch	ID Tag:		DBH: 7 inch
Hemlock Health:		Pair	Hemlock Health:		Good
Other Stressors?			Other Stressors?		
WMA Density:		Medium	WMA Density:		Medium
<b>Tree 3</b>			<b>Tree 8</b>		
ID Tag:		DBH: 2 inch	ID Tag:		DBH: 10 inch
Hemlock Health:		Pair	Hemlock Health:		Good
Other Stressors?			Other Stressors?		
WMA Density:		Medium	WMA Density:		Medium
<b>Tree 4</b>			<b>Tree 9</b>		
ID Tag:		DBH: 6 inch	ID Tag:		DBH: 10 inch
Hemlock Health:		Good	Hemlock Health:		Good
Other Stressors?			Other Stressors?		
WMA Density:		Medium	WMA Density:		Medium
<b>Tree 5</b>			<b>Tree 10</b>		
ID Tag:		DBH: 2 inch	ID Tag:		DBH: 8 inch
Hemlock Health:		Pair	Hemlock Health:		Pair
Other Stressors?			Other Stressors?		
WMA Density:		Medium	WMA Density:		Medium
Record input by billy7					
Last Modified: 03/06/2014 11:54					



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## Predator Release Form

First Previous 311 of 1828 Next Last

Location: Afghanistan Afghanistan

Location Name: Foglar Lock		State: MD	Release ID: LHM0313008	Status: Pending	Type: Original
<b>Coordinate Reading</b>					
UTM					
Datum:	NAD83	Zone:	17		
Easting:	660211	Northing:	6384777		
Lat/Long:					
Latitude:	39.559958	Longitude:	-79.133331		
U M S	39 33 59.59		79 B 0008		
<b>Biological Control Agents Released</b>					
Species Released:			13		
Total No. Predators Released:			273		
Life Stage Released:			Adults		
Predator Density(Ind./Tree)					
Source of Beetles:			Field		
<b>Lab-Reared Beetles</b>					
Inventory: VA			Rearing Lot #: 2013		
Date of Shipment:					
Conditions Prior to Release:			Photoperiod: 12-12 (L-D)		
Temperature:			Outplanting:		
Post-Dissemination:					
<b>Field Collected Beetles</b>					
Wild Beetle Collection Site:			Scout of Adams, Idaho		
Wild Beetle Collector:			Thompson, Oregon		
Date of Field Collection:			11/29/2013		
<b>Pre-Release Data for Release Trees</b>					
<b>Tree 1</b>			<b>Tree 6</b>		
ID Tag:		DBH:	ID Tag:		DBH:
Hemlock Health:			Hemlock Health:		
Other Stressors?			Other Stressors?		
WMA Density:			WMA Density:		
<b>Tree 2</b>			<b>Tree 7</b>		
ID Tag:		DBH:	ID Tag:		DBH:
Hemlock Health:			Hemlock Health:		
Other Stressors?			Other Stressors?		
WMA Density:			WMA Density:		
<b>Tree 3</b>			<b>Tree 8</b>		
ID Tag:		DBH:	ID Tag:		DBH:
Hemlock Health:			Hemlock Health:		
Other Stressors?			Other Stressors?		
WMA Density:			WMA Density:		
<b>Tree 4</b>			<b>Tree 9</b>		
ID Tag:		DBH:	ID Tag:		DBH:
Hemlock Health:			Hemlock Health:		
Other Stressors?			Other Stressors?		
WMA Density:			WMA Density:		
<b>Tree 5</b>			<b>Tree 10</b>		
ID Tag:		DBH:	ID Tag:		DBH:
Hemlock Health:			Hemlock Health:		
Other Stressors?			Other Stressors?		
WMA Density:			WMA Density:		
Record input by billy7					
Last Modified: 01/06/2014 12:36					



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## Predator Release Form

First Previous 318 of 1828 Next Last

Location: Afghanistan Afghanistan

Location Name: Savage River State Forest		State: MD	Release ID: LHM0308001	Status: Approved	Type: Original
<b>Coordinate Reading</b>					
UTM					
Datum:	NAD83	Zone:	17		
Easting:	660839	Northing:	64278028		
Lat/Long:					
Latitude:	39.545133	Longitude:	-79.138811		
U M S	39 32 39.61		79 B 2 8881		
U M S	39 32 42.54		79 B 23.31		
<b>Biological Control Agents Released</b>					
Species Released:			13		
Total No. Predators Released:			1000		
Life Stage Released:			Adults		
Predator Density(Ind./Tree)					
Source of Beetles:			LAB		
<b>Lab-Reared Beetles</b>					
Inventory: VA			Rearing Lot #: 2008		
Date of Shipment:			10/02/2008		
Conditions Prior to Release:			Each emerged beetles fed artificial diet in lab before shipping		
Temperature:			Photoperiod: 12-12 (L-D)		
Post-Dissemination:			Outplanting: No		
<b>Field Collected Beetles</b>					
Wild Beetle Collection Site:					
Wild Beetle Collector:					
Date of Field Collection:					
<b>Pre-Release Data for Release Trees</b>					
<b>Tree 1</b>			<b>Tree 6</b>		
ID Tag:		DBH: 13 inch	ID Tag:		DBH: 6 inch
Hemlock Health:		Good	Hemlock Health:		Good
Other Stressors?			Other Stressors?		
WMA Density:		Medium	WMA Density:		Medium
<b>Tree 2</b>			<b>Tree 7</b>		
ID Tag:		DBH: 3 inch	ID Tag:		DBH: 3 inch
Hemlock Health:		Good	Hemlock Health:		Good
Other Stressors?			Other Stressors?		
WMA Density:		Medium	WMA Density:		High
<b>Tree 3</b>			<b>Tree 8</b>		
ID Tag:		DBH: 14 inch	ID Tag:		DBH: 4 inch
Hemlock Health:		Good	Hemlock Health:		Good
Other Stressors?			Other Stressors?		
WMA Density:		Low	WMA Density:		Medium
<b>Tree 4</b>			<b>Tree 9</b>		
ID Tag:		DBH: 8 inch	ID Tag:		DBH: 4 inch
Hemlock Health:		Good	Hemlock Health:		Good
Other Stressors?			Other Stressors?		
WMA Density:		Low	WMA Density:		High
<b>Tree 5</b>			<b>Tree 10</b>		
ID Tag:		DBH: 2 inch	ID Tag:		DBH: 8 inch
Hemlock Health:		Good	Hemlock Health:		Good
Other Stressors?			Other Stressors?		
WMA Density:		Medium	WMA Density:		Medium
Record input by vltzer					
Last Modified: 11/05/2008 10:15					

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## Predator Release Form

First Preview 352 of 1828 Next Last

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Location Name: Poplar/Lick Ln State: MD Release ID: LNM0213008 Status: Pending Type: Augment Original ReleaseID:		Site Ownership: MD DNR Site Contact: Wade Dorney	
Coordinate Reading		Releaser's Contact Information	
UTM Datum: NAD83 Zone: 17 Easting: 860225 Northing: 8188877 Lat/Long: 39 43.6666 79 13.3333 Longitude: 79 13.3333 Latitude: 39 43.6666 ID DM: 39 43.6666 ID M S: 39 43.6666		Name: Bill Thompson Phone Number: 800-767-1304 Organization: MD Dept. Agriculture Email Address: bth7@verizon.net	
Biological Control Agents Released		Date of Release: 11/13/2013 Time of Release: 11:00	
Total No. Predators Released: 100 Life Stage Released: Adults Predator Description(s) / Tree: Field Source of Beetles:		Weather: 55 F Wind: none Precipitation: none Cloud Cover: None	
Lab-Reared Beetles		Stand Condition	
Inventory: Rearing Lot #: Hermitlock Density: 150% Date of Shipment: Conditions Prior to Release: Overall Health: Fair Codominant: Temperatures: Photoperiod: (L:D) Stage: Post Dispersal? Outplanting? Argents: SE Medium: Field-Collected Beetles: Source of Adults: Idaho Thompson Orchard Date of Field Collection: 11/13/2013		Hermitlock Density: 150% Overall Health: Fair Codominant: Argents: SE Medium: Notes:	
Tree 1		Tree 6	
ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:		ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:	
Tree 2		Tree 7	
ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:		ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:	
Tree 3		Tree 8	
ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:		ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:	
Tree 4		Tree 9	
ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:		ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:	
Tree 5		Tree 10	
ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:		ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:	
Record input by bth7		Last Modified: 01/06/2014 12:45	

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## Predator Release Form

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Location Name: Poplar/Lick Ln State: MD Release ID: LNM0213008 Status: Pending Type: Augment Original ReleaseID:		Site Ownership: MD DNR Site Contact: Wade Dorney	
Coordinate Reading		Releaser's Contact Information	
UTM Datum: NAD83 Zone: 17 Easting: 860225 Northing: 8188877 Lat/Long: 39 43.6666 79 13.3333 Longitude: 79 13.3333 Latitude: 39 43.6666 ID DM: 39 43.6666 ID M S: 39 43.6666		Name: Bill Thompson Phone Number: 800-767-1304 Organization: MD Dept. Agriculture Email Address: bth7@verizon.net	
Biological Control Agents Released		Date of Release: 11/23/2013 Time of Release: 10:00	
Total No. Predators Released: 100 Life Stage Released: Adults Predator Description(s) / Tree: Field Source of Beetles:		Weather: 50 F Wind: medium Precipitation: snow Cloud Cover: 75%	
Lab-Reared Beetles		Stand Condition	
Inventory: Rearing Lot #: Hermitlock Density: 150% Date of Shipment: Conditions Prior to Release: Overall Health: Fair Codominant: Temperatures: Photoperiod: (L:D) Stage: Post Dispersal? Outplanting? Argents: SE Medium: Field-Collected Beetles: Source of Adults: Idaho Thompson Orchard Date of Field Collection: 11/23/2013		Hermitlock Density: 150% Overall Health: Fair Codominant: Argents: SE Medium: Notes:	
Tree 1		Tree 6	
ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:		ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:	
Tree 2		Tree 7	
ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:		ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:	
Tree 3		Tree 8	
ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:		ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:	
Tree 4		Tree 9	
ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:		ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:	
Tree 5		Tree 10	
ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:		ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:	
Record input by bth7		Last Modified: 01/06/2014 12:48	

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## Predator Release Form

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Location Name: Poplar/Lick Ln State: MD Release ID: LNM0213007 Status: Pending Type: Augment Original ReleaseID:		Site Ownership: MD DNR Site Contact: Wade Dorney	
Coordinate Reading		Releaser's Contact Information	
UTM Datum: NAD83 Zone: 17 Easting: 860225 Northing: 8188877 Lat/Long: 39 43.6666 79 13.3333 Longitude: 79 13.3333 Latitude: 39 43.6666 ID DM: 39 43.6666 ID M S: 39 43.6666		Name: Bill Thompson Phone Number: 800-767-1304 Organization: MD Dept. Agriculture Email Address: bth7@verizon.net	
Biological Control Agents Released		Date of Release: 04/18/2013 Time of Release: 10:00	
Total No. Predators Released: 100 Life Stage Released: Adults Predator Description(s) / Tree: Field Source of Beetles:		Weather: 55 F Wind: none Precipitation: none Cloud Cover: None	
Lab-Reared Beetles		Stand Condition	
Inventory: Rearing Lot #: Hermitlock Density: 150% Date of Shipment: Conditions Prior to Release: Overall Health: Fair Codominant: Temperatures: Photoperiod: (L:D) Stage: Post Dispersal? Outplanting? Argents: SE Medium: Field-Collected Beetles: Source of Adults: Idaho Thompson Orchard Date of Field Collection: 04/13/2013		Hermitlock Density: 150% Overall Health: Fair Codominant: Argents: SE Medium: Notes:	
Tree 1		Tree 6	
ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:		ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:	
Tree 2		Tree 7	
ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:		ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:	
Tree 3		Tree 8	
ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:		ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:	
Tree 4		Tree 9	
ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:		ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:	
Tree 5		Tree 10	
ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:		ID Tag: Date: Hermitlock Health: Other Stressors? WMA Density:	
Record input by bth7		Last Modified: 01/06/2014 12:35	